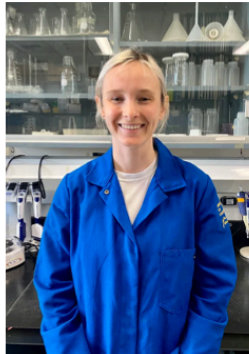


2024 Hrdy Funding Annual Report: The Raptor Nest Box Grower Alliance

Team Members:



Dr. Breanna Martinico
UCCE Human-Wildlife
Interactions Advisor



Mary Badger
UC Davis Ecology
PhD Student



Robyn Boothby
UCCE Staff Research
Associate



Dr. Ryan Bourbour
Wildlife Pesticide Investigations
CDFW Wildlife Health Lab

Priority Topic Areas:

- Sustainable Agriculture, with special regard to climate change
- Interaction of Natural Ecosystems and Agriculture
- Habitat Restoration and Conservation

Scope: Through this Applied Research Project, we are investigating how climate change and agroecosystems influence the fitness of American Kestrels that contribute to biological control of agricultural pests. We will examine the role of land-use, diet, dispersal, extreme heat, and pesticide exposure.

Importance & Urgency: Agricultural producers enhance biological control of pests by attracting birds with nest boxes. While farmland provides compatible foraging and breeding habitats for birds, agricultural intensification, pesticides, and climate change may negatively impact populations attracted to these working landscapes. In order to sustain the ecosystem services from biodiversity that sustainable agriculture relies upon, we must further understand the influences of anthropogenic stressors on these taxa.



Predatory birds, such as American Kestrels, can provide multiple benefits by enhancing farm sustainability and conservation.

Expected Outcomes:

- *Short-term:* Increased understanding of American Kestrels and Integrated Pest Management (IPM) across land-use types and operational scales.
- *Medium-term:* Adoption and expansion of nest box networks by agricultural producers.
- *Long-term:* 1) Increased agricultural sustainability through promotion of California's natural resources and the reduction in pesticide-use; 2) Increased agricultural profitability through improved IPM solutions; and 3) Increased ecosystem resiliency to extreme weather and climate change.

Measuring Success: We will use surveys to measure increased knowledge and behavior changes in research partners and extension participants. Condition changes will be tracked throughout the long-term project.

Year 1 Outputs and Outcomes:

Partnerships

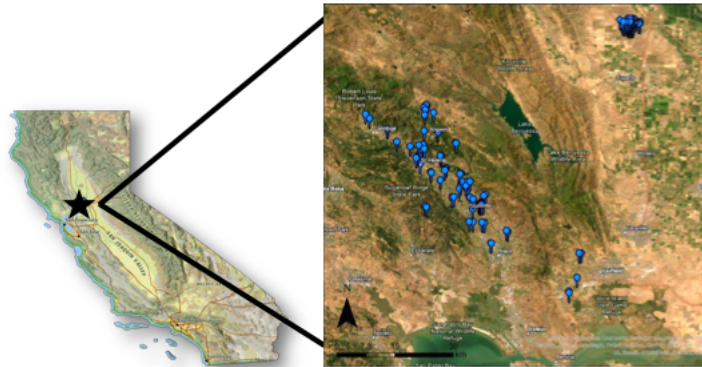
- We built relationships with 18 partners that installed 36 new nest boxes.
- We established contact with 29 partners representing 98 existing nest boxes.
- Participants range from large-scale vineyards, diversified farms, and several home-owners across Napa, Solano, and Yolo counties.
- We had 5 nest boxes donated and we installed them on Solano County farms.
- We forged partnerships with organizations: Napa-Solano Audubon, Wild Farm Alliance, Clark's Sustainable Solutions, and the City of Davis Kestrel Nest Box Team.



Research



Research results: We monitored 132 American Kestrel nest boxes. We documented 14 successful nests that fledged at least one young-- 6/80 in Napa, 1/5 in Solano, 7/47 in Yolo. We collected diet samples from each nest. We documented an additional 8 failed nests in Yolo coinciding with heat waves in July. We suspect that nest box occupancy will increase in 2025, as it can take time for newer nest boxes to be located and occupied. We found 4 nests occupied by other species, including Western Screech Owl, Northern Flicker, European Starling, and Tree Swallow.



Extension

We hosted a field day (*A Tiered Approach to IPM: Beneficial Birds and Gopher Trapping*) and a workshop (*Living with Wildlife*) and participated in three additional field days where educational materials regarding this project were disseminated. We reached over 250 participants from Lake, Mendocino, Napa, Sonoma, Yolo, and Solano counties and provided translation to Spanish speakers at two events. Participants reported knowledge gained and increased likelihood of implementing sustainable practices as a result of attending events. *Full survey results will be summarized at the end of the project.*



Growers attended events to "learn how to control pests with IPM strategies" and reported receiving "clean, direct information related to needs" that was "friendly, informative, and thought provoking".

Next steps

- Annual report presentation, December 19, 2024: We will host a virtual webinar (via Zoom) for partners and funders. We will summarize accomplishments and findings from the first field season of this project and answer participant questions.
- Yolo Bird Alliance monthly seminar, February 19, 2025; We will present to the local chapter members and the public about this project.
- Working with Napa-Solano Audubon, we will site and install 8 donated nest boxes in Solano County Jan-March 2025.
- In partnership with Wild Farm Alliance, we will utilize Wildlife Conservation Board funding to purchase and install additional nest boxes for agricultural producers Jan-March 2025.
- Efforts to prepare for the 2025 field season are underway.